Inventor: Dean Scribner.
Serial No.

PATENT APPLICATION
Navy Case No. 83,682

REMARKS

Claims 1-4 were originally filed in this case. These claims are directed to a prosthesis test device and a retinal implant device. Upon discussions with the inventor, it is apparant from the original specification that both of these devices may be uses to stimulate neural tissue, and the claims have been amended to include this further feature. It is respectfully requested that the examiner pass these amended claims as presented in this divisional application to allowance.

Kindly charge any additional fees due or credit overpayment of fees to Deposit Account Number 50-0281.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Cancel claims 1-4 as originally submitted.

Enter the following new claims 5-8.

5. A retinal prosthesis test device comprised of:

an external image source producing a video image;

a micro-cable for conducting the video through a patient's eye wall;

an electronic chip for demultiplexing the video image into a two-dimensional (2-D) array of unit cells;

a nanochannel glass electrode array hybridized to said 2-D array of unit cells with induim bumps and electrically connecting each unit cell to adjacent neural tissue;

an external electronic circuit board generating a biphasic pulse applied globally to the unit cells through the micro-cable causing an electronic signal to be directed into a human eye retina wherein it is converted to an electrochemical signal and transmitted within the eye to a patient's optic nerve,

whereby said device stimulates neural tissue via a conformal surface achieved by machining said nanochannel glass surface..

6. A device, as in Claim 5, wherein the nanochannel glass electronic array is comprised of a hybridized to the microelectronic chip mounted on a ceramic chip carrier, all unit cells controlled by a series of row shift registers and column shift registers for directing the incoming video image to a predetermined unit cell.

7. A permanent retinal implant device comprised of:

a nanochannel glass electrode array and thinned electronic chip for receiving photons through a human iris and converting said photons to a two-dimensional (2-D) spatially discrete electrical signal residing in individual unit cells;

an electronic unit located externally on a patient for inductively transmitting electrical power and control signals to the electronic chip and nanochannel glass electrode array within the patients eye;

a biphasic pulse generated with on-chip electronic circuitry causing an electrical signal to be routed through the nanochannel glass electrode array and applied to adjacent retinal tissue in a human eye where it is converted into an electrochemical signal to be transmitted through retinal neurons within the eye to a patients optic nerve;

whereby said device stimulates neural tissue via a conformal surface achieved by machining said nanochannel glass surface..

8. A device, as in Claim 7, wherein the nanochannel glass electronic array is further comprised of an on-chip antenna for receiving the inductively transmitted signals and applying them selectively to an array of unit cells, digital electronics for controlling the application of the electrical to the retinal tissue, an on-chip power receiver for applying power to the array of unit cells, a bias voltage supply for operating the electronic chip, and a biphasic pulse generator for generating the biphasic pulse, as well as row and column shift registers.